AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Previously presented): A method for producing fullerenes, comprising:

a first process of either imperfectly combusting or thermally decomposing a hydrocarbon fuel in a reactor, thereby producing a high-temperature gas flow containing fullerenes and soot;

a second process of collecting a mixture of fullerenes and soot from the gas flow containing fullerenes and soot using a filtering unit, said filtering unit including a heat-resistant filtering member made of a porous metal material as a raw material; and

a third process of collecting fullerenes from the mixture,

wherein a temperature-regulating unit is provided between the reactor and the filtering unit to regulate the high-temperature gas flow generated by said first process to a temperature within a range between more than 300 and 600 °C, the temperature-regulating unit including a piping passage made of a heat-resistant metallic material and a water-cooling pipe extending around the exterior of the piping passage, the piping passage allowing the gas flow discharged from an exhaust port of the reactor to enter the piping passage in a direction tangential to the piping passage and to flow in a swirl inside the piping passage.

2. (Cancelled).

3. (Currently amended): [[A]] <u>The</u> method for producing fullerenes as defined in claim 1, wherein said collecting fullerenes according to said third process comprises dissolving the mixture into a solvent to collect and separate fullerenes from the mixture.

4. (Currently amended): [[A]] The method for producing fullerenes as defined in claim 1, wherein said collecting fullerenes according to said third process comprises heating mixture to an elevated temperature in the absence of oxygen to vaporize fullerenes, thereby separating fullerenes from soot.

5. (Currently amended): [[A]] The method for producing fullerenes as defined in claim 1, wherein said heat-resistant filtering member has a filtration flow capability to filter the gas flow that streams through said heat-resistant filtering member, the filtration flow capability being in a range of 0.2 to 10 m^3 /m^2/minute.

6. Cancelled.

7. Cancelled.

8. (Currently amended): [[A]] The method for producing fullerenes as defined in claim 1, wherein said filtering unit includes a plurality of cylindrical-shaped unit filter elements, each of which is made of said heat-resistant filtering member, and each of which has a bottom, said plurality of cylindrical-shaped unit filter elements being divided into plural gangs; and

wherein the gas flow is streamed through each of said unit filter elements from outside of each of said unit filter elements to inside of each of said unit filter elements.

9. (Currently amended): [[A]] The method for producing fullerenes as defined in claim 8, wherein, when said unit filter elements get clogged up, an inert gas is fed through said unit filter elements from inside to outside of each of said unit filter elements, thereby removing the mixture from said unit filter elements.

10. (Currently amended): [[A]] The method for producing fullerenes as defined in claim 9, wherein said removing the mixture from said unit filter elements using the inert gas comprises removing the mixture from said unit filter elements for each of the plural gangs.

11. (Previously presented): The method for producing fullerenes as defined in claim 1, wherein the heat-resistant filtering member made of a porous metal material is made of heat-resistant sintered metal.

12. (Previously presented): The method for producing fullerenes as defined in claim 11, wherein said heat-resistant sintered metal is stainless steel.

13. (Previously presented): The method for producing fullerenes as defined in claim 1, wherein the heat-resistant filtering member is fabricated of metal having a thickness in the range of from 0.2 to 3 mm.

14. (Previously presented): The method for producing fullerenes as defined in claim 1, wherein the heat-resistant filtering member has a filtration flow capability in the range of from 1 to 5 m^3/m^2/minute.

15. (Previously presented): The method for producing fullerenes as defined in claim 1, wherein the reactor has internal pressure falling within a range between 20 and 200 torr.

16. (Previously presented): The method for producing fullerenes as defined in claim 1, wherein the reactor has internal pressure falling within a range between 30 to 80 torr.

17. (Previously presented): The method for producing fullerenes as defined in claim 1, wherein the reactor has internal temperature falling within a range between 1500 and 2500 °C.

18. (Previously presented): The method for producing fullerenes as defined in claim 1, wherein the reactor has internal temperature falling within a range between 1700 and 1900 °C.

19. (Currently amended): The method for producing fullerenes as defined in claim 1, wherein the ~~wherein a~~ temperature-regulating unit regulates the high-temperature gas flow generated by said first process to a temperature in a range between 350 and 500 °C.